

control mixtures with normal serum. The pH of the incubated suspensions were the same with the specific antiserum and normal serum. The effects of the antiserum were thus demonstrable only as a suppression of the growth-potential of carcinoma cells.

Attempts were made to stimulate the formation of the same growth-inhibiting antibody by repeated intraperitoneal injection of cell-free Brown-Pearce tumor tissue extracts. The results were negative except with one strain of rabbits, in which about one-third of the animals developed antibodies after 3 to 4 intraperitoneal injections. All animals in which the antibody developed proved to be carcinoma resistant when tested with a small dose of Brown-Pearce tumor cells implanted intramuscularly. All vaccinated rabbits that had not developed a detectable titer of the complement-deviating antibody proved as susceptible as normal rabbits, the intramuscular implantation resulting in large tumor growths.

While many rabbits in which the Brown-Pearce carcinoma has been resorbed develop specific antibodies, others that have overcome the carcinoma develop no detectable humoral antibody. It seems evident, therefore, that resorption of cancer growth can be brought about by factors other than specific antibodies. The nature of these other carcinolytic factors has not yet been determined.

Application of the same serological technique to V2 carcinoma and other rabbit neoplasms is now in progress.

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### AGRANULOCYTOSIS

#### REPORT OF CASE CAUSED BY SULFADIAZINE

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THERE have been five previous reports of agranulocytosis developing as a complication of the use of sulfadiazine. A sixth case is here reported.

#### REPORT OF CASE

The patient, a twenty-year-old white female, entered Highland Hospital on February 5th, for treatment of a felon. The felon was drained promptly, but on February 8th it was found that an osteomyelitis of the terminal phalanx was present. The patient was placed on sulfathiazole, 1 gram every 4 hours.

On February 15th, after having received 44 grams of sulfathiazole, the patient developed a rise in temperature

and a rash; the sulfathiazole was discontinued and the temperature promptly returned to normal. A white blood count at this time showed 7,200 cells with a normal differential count. Two days later, the patient was placed on 1 gram of sulfadiazine every four hours, and by March 1st there was considerable improvement of the felon. However, on that date, after having received 72 grams of sulfadiazine, the patient's white blood count was 3,000 cells. The differential count on 500 white cells showed less than 1 per cent segmented forms, 1 per cent stab forms, 3 per cent basophiles, and 96 per cent lymphocytes. The hemoglobin was 85 per cent.

On March 1st, the temperature was 100° F., the pulse 120 per minute, and the patient did not appear ill. The pharynx was slightly injected but there were no oral ulcerations. Between March 2nd and 8th, the temperature varied between 101° F., and 104° F., and the patient became progressively more toxic and lethargic. The pharynx gradually became more reddened and the gums edematous with an occasional small patch of pseudomembrane. An ulcer appeared on the gingivolingual mucous membrane. The only complaints during this time were, sore throat, sore mouth, a feeling of lassitude, cough, and a nasal discharge.

During the first eight days of the hospital stay for the agranulocytosis the white blood count dropped to 1,750 cells with a differential count of 1 per cent eosinophiles, 1 per cent basophiles, 4 per cent monocytes and 94 per cent lymphocytes per 500 white cells. On the eighth day after admission, the white cell count and clinical condition showed response to therapy and thereafter rapidly returned to normal. Paul-Bunnell tests performed on the eighth and twenty-first days were negative.

Therapy consisted: (1) discontinuing sulfadiazine;

(2) isolating the patient from exogenous infection;

(3) 40 c.c. of Pentnucleotide intramuscularly daily for a total of 360 c.c.;

(4) 8 c.c. of liver extract intramuscularly daily for a total of 48 c.c.;

(5) approximately 300 c.c. transfusions of whole fresh blood twice daily for a total of 3,200 c.c.;

(6) atraumatic oral hygiene by means of normal saline mouth washes; and

(7) high vitamin C intake.

#### COMMENT

This is the sixth reported case of agranulocytosis caused by sulfadiazine. The patient recovered with the accepted methods of treatment.

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*Pre-Marital Certificates.*—Pre-marital certificates may not be issued in California by drugless practitioners, including chiropractors, because State law limits such authority to duly licensed physicians and surgeons, Attorney General Robert W. Kenny stated in opinion NS5326. Request for the ruling came from Wilton L. Halverson, Director of Public Health. Only those licensed by the Board of Medical Examiners and the Board of Osteopathic Examiners may legally issue such certificates, Kenny stated. He pointed out that a county clerk would be guilty of a misdemeanor if he accepted a pre-marital certificate not made out by a "duly licensed physician or surgeon."

Perseverance is more prevailing than violence and many things which cannot be overcome when they are together, yield themselves up when taken little by little. —Plutarch.

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